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NEW LEGUMINOSAE RECORDS FROM AGUASCALIENTES, MEXICO

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ABSTRACT

A floristic study of the family Leguminosae from Aguascalientes, México was done. One hundred and nine species were recorded, from them 44 resulted in new records for this locality. Habitat and distribution data from each taxon is mentioned.

KEY WORDS: New Records, Leguminosae, legumes, Aguascalientes, México

RESUMEN

Se llevó a cabo un estudio florístico de la familia Leguminosae en Aguascalientes, México. Se registraron 109 especies, de ellas 44 resultaron ser nuevos registros para esa localidad. Se mencionan datos adicionales sobre hábitat y distribución para cada taxón.

PALABRAS CLAVE: nuevos registros, Leguminosae, legumbres, Aguascalientes, México

INTRODUCTION

Legumes are significantly important to humans. The family Leguminosae is an important feeding source to man and animals in general, besides they are variably used in the industry, particularly in the state of Aguascalientes, México. There are cultivated grains as well as a great variety of wild species which are used by the people for several purposes. We could mention a couple of livestock species: *Eysenhardtia polystachya* Sarg. (varaduz) and *Dalea bicolor* H.B.K. (engordacabra). Medicinal ones are *Zornia thymifolia* Kunth (hierba de la vibora) and *Crotalaria pumila* Ort.

(tronador) mentioned by García (1989). *Leucaena esculenta* (DC.) Benth. (temachaca) and *Lysiloma acapulcense* (Kunth) Benth. (guache) are being used for food, while *Erythrina flavelliformis* and *Lupinus* sp. are ornamentals. In other respects, the vegetation of Aguascalientes is constituted by a high percentage of legumes, especially the thorny scrub in the North and Central parts of the State.

Aguascalientes State is located at the center of the Mexican Republic, between the North Latitude of 21° 38′ 03″ and 22° 07′ 06″ and West Longitude of 101° 03′ 09″ and 103° 00′ 51″. It is limited by Zacatecas on the north, east and west sides, and by Jalisco southward. It has 5589 square km divided into nine municipios (counties): Aguascalientes, Asientos, Calvillo, Cosío, Jesús María, Pabellón de Arteaga, Rincón de Romos, San José de Gracia, y Tepezalá (Figure 1). It has a little rough topography composed of a great central plain with some elevations and a reduced mountain region in the northwest. The altitude goes from 1570 to 2900 m. The climate of this area can be considered inside of half dry group [BS] with some variant (Anónimo 1981b), and the predominant soils are arid soils proper from arid regions (Bolio, *et al.* 1970).

Aguascalientes is conformed by xerophytic vegetation, predominantly a secondary thorny scrub in most of its territory. In the NW part, in the mountain region of the State, it is possible to find *Quercus* and *Pinus* forests, while at the SW there is a small region covered by tropical scrub. In addition, it is possible to find small areas of grassland in regular or poor condition. Confined to the top of the higher mountains there exists *Arctostaphylos pungens* H.B.K. scrub (De la Cerda, *et al.* 1985).

The family Leguminosae in Aguascalientes was first studied by León Cazares (1970) who reported *Acacia berlandieri* Benth., *A. cochiliacantha*, *A. constricta* A. Gray, *A. macilenta* Rose, *A. tortuosa*. *Mimosa biuncifera* Benth., *M. minutifolia* B.L. Robins. & Greenm., *M. monancistra*, and *Prosopis juliflora*. Correll & Johnston (1970) reported *Dalea brachystachya* A. Gray and *Phaseolus metcalfei* Woot. & Standl. Hernández (1982, 1986, 1989) mentioned *Erythrina montana* Standl. and *Zapoteca media* (Mart.) H.M. Hern. for the subtropical region of the State. Anónimo (1981a) made a mention of *Mimosa monancistra*, *Dalea filiciformis* B.L. Robins. & Greenm., and *Phaseolus metcalfei*. Standley (1920) reported *Mimosa monancistra*, *Eysenhardtia punctata* Pennell, and *Dolicholus macrocarpus* Rose. The most important contributors are Rzedowski (1972, 1979, 1988) who cited *Astragalus coriaceus* Hemsl., *A. hypoleucus* Schauer, *Calliandra eriophylla* Benth., *Crotalaria pumila*, *Dalea bicolor*, *D. erythrorhiza* Greenm., *D. lutea*, *D. prostrata*, *Eysenhardtia polystachya*, *Trifolium goniocarpum*, *Vicia pulchella*, *Lupinus bilineatus*, and *Prosopis laevigata* (Willd.) M.C. Johnst. Finally the most important contribution to the legume flora of the State was that of McVaugh (1987) who reported 67 taxa for Aguascalientes.

As a consequence of the fragmentary information existent to date, we considered the necessity of making an inventory of legumes from Aguascalientes, in order to know more about their distribution inside the State, to evaluate their actual condition, and to observe some aspects regarding each species habitat. In the process, we found 44 records or legumes not previously reported from Aguascalientes.

MATERIALS AND METHODS

Specimens used in this study were from two sources: our own fresh collections made during two consecutive years, covering the entire state of Aguascalientes, and the complete legume collections of dried specimens belonging to the Herbaria at UAA and MEXU (México). In addition, several legume specialists were consulted to corroborate the species determinations of some difficult specimens.

The methodology used was the one proposed by Lott & Chiang (1986), the same used in any floristic study. The material identification was made with the help of the following references: McVaugh (1987), Barneby (1964, 1977), Rzedowski (1979), Standley (1920), Standley & Steyermark (1946), Vines (1960), Isley (1973, 1975, 1981), and Correll & Johnston (1970).

RESULTS

One hundred and nine species of legumes were determined during this study, of which 44 resulted in new records for the State of Aguascalientes (Table 1).

DISCUSSION

The most complete report of legumes from Aguascalientes before the present study was that of McVaugh (1987), in which the 67 species represents 55% of the 109 species found in this study. Meanwhile, the isolated reports of legumes mentioned above constitute only another 4.5%. As a consequence, the remainder of species never before mentioned for Aguascalientes correspond to 40.5% of the current list.

These new records are generally distributed in inaccessible, conserved places, far from urban centers or occasionally near small population centers. Those plants not distributed as above are often abundant, so familiar as weeds, that botanists apparently did not pay attention to them.

Most of the new records belonging to the subfamily Papilionoideae, are annual plants with abundant populations, present in a short period of time annually (*e.g.*, *Phaseolus* spp., *Cologania* spp., *Crotalaria* spp.); other plants are scarce and difficult to find at first sight (*e.g.*, *Coursetia caribaea* (Jacq.) Lavin var. *caribaea*, from one collection site in tropical scrub, and *Dalea confusa* (Rydb.) Barneby var. *exandra* Barneby, restricted to high marshlands in association with *Isoetes montezumae* A.A. Eaton at 2550 m. The genera *Desmodium* and *Lupinus* have been less studied in México and we experienced difficulty in their taxonomic determinations. This difficulty in their determinations makes their collection not very attractive and often ignored.

TABLE 1. New records of Leguminosae from Aguascalientes.

SPECIES	DISTRIBUTION	HABITAT
SUBFAMILY MIMOSOIDEAE		
Acacia acatlensis Benth.	3	1e
Albizia plurijuga (Standl.) Britt. & Rose	3	1e
Calliandra grandiflora (L'Her.) Benth.	3	1e
Calliandra humilis Benth. var. *humilis*	8,9	1a,2d
Desmanthus pumilus (Schult.) Macbr.	5,8	1a,2d
Leucaena esculenta (DC.) Benth.	3	1e
Lysiloma acapulcense (Kunth) Benth.	3	1e
Lysiloma microphyllum Benth.	3	1e
Mimosa benthamii Macbr.	3	1e
Mimosa zygophylla A. Gray	9	1c,d
SUBFAMILY PAPILIONOIDEAE		
Astragalus guatemalensis Hemsl. var. *brevidentatus* (Hemsl.) Barneby	8	2a,c
Astragalus jaliscensis (Rydb.) Barneby	3,8	2a,c
Cologania biloba (Lindl.) Nicholson	8	2
Cologania broussonetii (Balbis) DC.	1,3,8	2
Cologania jaliscana S. Wats.	3,5,8	2
Coursetia caribaea (Jacq.) Lavin var. *caribaea*	3	1e
Crotalaria rotundifolia var. *vulgaris* Windler	8	2c
Dalea capitata S. Wats. var. *capitata*	9	1c
Dalea confusa (Rydb.) Barneby var. *exandra* Barneby	8	7
Dalea polygonoides A. Gray	8	2c
Desmodium aparines (Link.) DC.	5,8	2a,c
Desmodium grahamii A. Gray	5,8	1d,2
Desmodium prehensile Schlecht.	3,7	1e,4
Desmodium procumbens (Mill.) Hitchc.	5,8	4
Desmodium aff. *pringlei* S. Wats.	1	1a
Desmodium aff. *volubile* (Schindl.) Schubert & McVaugh	3	1e
Indigofera montana Rose	5	4/3
Lotus orobioides (H.B.K.) Ottley	3	2a,c
Lotus repens (Don.) Standl. & Steyerm.	8	2c
Lupinus aff. *leptocarpus* Benth.	8	2d
Macroptilum atropurpureus (DC.) Urban.	3,5	1
Medicago lupulina L.	1	7
Medicago polymorpha L.	1,4	4

TABLE 1. (cont.).

SPECIES	DISTRIBUTION	HABITAT
SUBFAMILY PAPILIONOIDEAE (cont.)		
Melilotus alba Desr.	6	4
Melilotus indica (L.) All.	1,6,7	4,7
Phaseolus coccineus L.	3	1e
Phaseolus grayanus Woot. & Standl.	8	2a,c,e
Phaseolus ritensis Jones	5,8	1a,2a
Trifolium amabile H.B.K.	3,8	4,2a
Vicia sativa L.	7	5
SUBFAMILY CAESALPINOIDEAE		
Chamaecrista nictitans (L.) Moench. var. *jaliscensis* (Greenm.) Irwin & Barneby	3	1e
Chamaecrista serpens Greene var. *wrightii* (A. Gray) Irwin & Barneby	1,3	1e,2a
Conzattia multiflora (B.L. Rob.) Standl.	3	1e
Hoffmannseggia glauca (Ort.) Eifert.	1,4,9	1a,b,c
Senna bauhinioides A. Gray	1,9	1a,c,d

Distribution (municipios of the state of Aguascalientes): 1. Aguascalientes, 2. Asientos, 3. Calvillo, 4. Cosío, 5. Jesús María, 6. Pabellón, 7. Rincón de Romos, 8. San José de Gracia, 9. Tepezalá.
Vegetation: 1. Scrub: a-thorny, b-subthorny, c-inerme, d-subinerme, e-subtropical; 2. Forest of: a-*Quercus*, b-*Pinus*, c-*Quercus-Pinus*, d-*Pinus-Quercus*, e-*Juniperus*; 3. Grassland; 4. Disturbed vegetation; 5. Agriculture; 6. Riparian vegetation.

On the other hand, most of the species belonging to the subfamily Mimosoideae which were reported as new records, are characteristic trees from the tropical scrub. This type of vegetation is being decreased day by day because of conversion of the area for agriculture (citris and guava plantations). *Acacia acatlensis* and *Calliandra grandiflora* are some of the scarce trees, only found in conserved areas of this region. The same situation exists with *Conzattia multiflora* (subfamily Caesalpinoideae) an uncommon tree, known only from its site collection. Nevertheless, other trees are a dominant part of the landscape in this type of vegetation. Here we can mention *Leucaena esculenta, Lysiloma acapulcense, Lysiloma microphyllum*, and *Albizia plurijuga. Mimosa zygophylla* is located only in Tepezalá and Asientos, over xero-calcareous soils common in the north of the country and in these municipios of Aguascalientes. In the same region, *Senna bauhinioides* and *Hoffmannseggia glauca* (subfamily Caesalpinoideae) were collected.

In conclusion, it is possible to mention that Aguascalientes is probably not offering new discoveries to science, given its geographic situation. In fact, few botanic expeditions had occurred specifically on its mountainous region, making some slopes interesting for botanists at present.

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